## Abstract Submitted for the MAR06 Meeting of The American Physical Society

Current driven FFLO state in unconventional superconductors MATTHEW SONG, HYEONJIN DOH, HAE-YOUNG KEE, Dept. of Physics, Univ. of Toronto, Canada — The typical Fulde-Farell-Larkin-Ovchinnikov (FFLO) state is known as the superconducting state with periodic spatial variation of order parameter which becomes stable under a Zeeman magnetic field. Here, we suggest that a kind of FFLO state, Cooper pair with a finite center of mass momentum, can be induced without a magnetic field. We investigate the FFLO state in d-wave superconductivity with an external current. In this case, the direction of the induced center of mass momentum of FFLO state is orthogonal to the direction of the external current. We discuss the detail conditions of the gap function for the current driven FFLO state.

Hyeonjin Doh Dept. of Physics, Univ. of Toronto, Canada

Date submitted: 29 Nov 2005 Electronic form version 1.4